REMARKS

Claims 1-22 are pending in the present application. By this Amendment, independent claim 1 is amended for improved clarity and precision. For at least the reasons herein, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

I. Formality

Applicant thanks the Examiner for withdrawing the objection to the drawings. Accordingly, Applicant files herewith formal drawings that include the approved changes. Applicant also thanks the Examiner for withdrawing the rejections as indicated on the Office Action.

II. The claims are in proper condition under 35 U.S.C. § 112

A. 35 U.S.C. § 112, 1st paragraph rejections

Claims 4 and 20 stand rejected under 35 USC 112, 1st paragraph due to alleged lack of written description. Applicant respectfully submits that the Examiner has incorrectly rejected claim 4, and appears to have meant to reject claim 10, which recites "one-dimensional spotting". Therefore, Applicant respectfully requests withdrawal of the rejection of claim 4.

With respect to claim 10, Applicant refers the Examiner to application page 50, lines 22-25. Applicant respectfully submits that by looking at the two-dimensional arrangement of the spots in Figure 6, one skilled in the art would understand that a one-dimensional arrangement of the spots would be accomplished similarly to two-dimensional spotting, except not requiring the second dimension. For example, a two-dimensional orientation includes configures such as a square, rectangular, hexagonal or other array, or a circular array with radial lines or concentric rings. In contrast, a one-dimensional array is linear. Applicant respectfully submits that given the

disclosure of the specification, one skilled in the art would understand this difference. Thus, Applicant respectfully submits claim 10 is thus properly supported.

With respect to claim 20, Applicant respectfully submits that claimed area sensor is directed to a CCD camera, as disclosed through the specification of the present application. Applicant respectfully submits that claim 20 is thus properly supported. Accordingly, Applicant respectfully requests withdrawal of the alleged lack of written description rejections.

B. 2nd paragraph

Claims 10 and 19-21 under 35 USC 112, 2nd paragraph due to alleged indefiniteness. As noted above, one-dimensional spotting is defined as disclosed above and referenced in the specification. With respect to claims 19-21, Applicant directs the Examiner to independent claim 1 for proper antecedent basis.

III. The claims are novel

Claims 1-8, 12-18 and 22 stand rejected due to alleged anticipation under 35 USC 102(b) over Ullman et al. (U.S. Patent No. 6,103,537, hereafter "Ullman"). Applicant respectfully submits that Ullman fails to disclose all of the claimed combinations of features, as required for an anticipation rejection. For at least the reasons herein, Applicant respectfully requests withdrawal of the anticipation rejection, and allowance of the claims.

For a substantive discussion of the presently claimed invention and Ullman, Applicant refers the Examiner to the December 4, 2002 response. Further, Applicant notes that only the fractionated target is detected in the presently claimed invention.

Applicant respectfully submits that Ullman fails to disclose all of the claimed features. For example, but not by way of limitation, Applicant respectfully submits that Ullman fails to disclose fixing probes that are selected in advance on a substrate, and detecting only the fractionated target, as recited in independent claim 1. Applicant respectfully submits that Ullman does not detect only the fractionated target, because there may be other subjects of detection. As previously discussed in the December 4, 2002 Amendment, Ullman does not disclose that the probes are selected in advance, and fixed on a substrate as such.

Dependent claims 2-8, 12-18 and 22 depend from independent claim 1. Applicant respectfully submits that the dependent claims are allowable for at least the same reasons as the independent claim from which they depend. Also, Applicant respectfully submits that Ullman does not disclose when labeling occurs with respect to binding or fractionating, as recited in claims 14 and 16, and 15 and 17, respectively.

Thus, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

IV. The claims would not have been obvious

Claims 1, 2 and 9-21 stand rejected due to alleged obviousness under 35 USC 103(a) over the Examiner's proposed combination of Alfenito (U.S. Patent No. 6,355,419) and Ichie (U.S. Patent No. 5,796,112). Applicant respectfully submits that the Examiner's proposed combination of references fails to disclose or suggest all of the claimed combinations of features, as required for a prima facie obviousness rejection. For at least the reasons herein, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

Alfenito discloses preparation of pools of nucleic acid based on representation in a sample. At column 14, lines 50-54, Alfenito discloses distinguishing between adjacent and non-adjacent probes. However, Applicant respectfully submits that such detection does not correspond to only detecting the fractionated target. Further, Applicant respectfully submits that Alfenito does not disclose or even suggest that the samples are one-dimensionally or two-dimensionally spotted to form a plurality of spots. Further, the sequence of labeling with respect to binding and fractionating is not believed to be disclosed.

Ichie discloses a laser scanning optical system and apparatus. As pointed out by the Examiner, column 1, lines 38-54 of Ichie disclose two-dimensional and three-dimensional scanning. However, Applicant respectfully submits that Ichie does not disclose that the samples are one-dimensionally or two-dimensionally spotted to form a plurality of spots.

Applicant respectfully submits that the Examiner's proposed combination of references fails to disclose or suggest all of the claimed combinations of features. For example, but not by way of limitation, Applicant respectfully submits that the proposed combination of references fails to disclose or suggest detecting only a fractionated target, as recited in independent claim 1. Accordingly, Applicant respectfully requests withdrawal of the rejection of claim 1.

In Alfenito, when washing conditions are to be selected, parameters for washing are determine utilizing the difference in the stability between adjacent probes and non adjacent probes and washing operation is conducted, thereby removing unnecessary components.

To the contrary, according to the presently claimed invention, a necessary fractionated target can be separated, for example (but not by way of limitation), by electrophoresis without conducting any washing operation and the amount of the target can be measured.

Further, Alfenito states at column 14, lines 18-38 that hybridization and washing conditions such as temperature, concentration of components, hybridization and washing times, buffer components and their pH and ionic strength may be selected to detect substantially perfect match hybrids, may be selected to allow differentiation of perfect matches and one base pair mismatches, or may be selected to permit detection only of perfect match hybrids.

Applicant respectfully submits that Alfenito differs from the presently claimed invention. For example, but not by way of limitation, in the claimed invention, targets are fractionated utilizing the difference in molecular weights.

Thus, Applicant respectfully submits that the method disclosed in Alfenito is essentially different from the claimed method.

Dependent claims 2 and 9-21 depend from independent claim 1. Applicant respectfully submits that the dependent claims are allowable for at least the same reasons as the independent claim from which they depend. Additionally, Applicant respectfully submits that the Examiner's proposed combination of references fails to disclose or suggest performing one-dimensional spotting on the substrate, as recited in claim 10, or two-dimensional spotting, as recited in claim 11.

Further, Applicant respectfully submits that the Examiner's proposed combination of references fails to disclose or suggest the labeling step as recited in claims 14 and 17 (prior to

binding) and 15 and 18 (after fractionating of the targets). Applicant also submits that the proposed combination of references fails to disclose or suggest the area sensor recited in claim 20.

Thus, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Please enter the following amended claims:

1. (Amended) A biochemical analyzing method comprising the steps of

fixing probes selected in advance on a substrate[,];

binding a target with the probes using a specific binding reaction to capture the target[,];

fractionating the captured target to produce a fractionated target[,];

detecting only the fractionated target[,]; and

quantitatively analyzing the detected target.

2. (Previously Amended) The biochemical analyzing method in accordance with Claim 1, wherein the target is bound with the probes using hybridization.

3. (Previously Amended) The biochemical analyzing method in accordance with Claim 1, wherein the respective captured targets are electrophoresed, thereby being fractionated.

4. (Previously Amended) The biochemical analyzing method in accordance with Claim 3, wherein the respective captured targets are electrophoresed in a direction at an angle with the surface of the substrate, thereby being fractionated.

5. (Previously Amended) The biochemical analyzing method in accordance with Claim 4, wherein the respective captured targets are electrophoresed in gel adjacent and in contact with to the substrate, thereby being fractionated.

6. (Previously Amended) The biochemical analyzing method in accordance with Claim 5, wherein the respective captured targets are electrophoresed in a block of gel adjacent to the substrate, thereby being fractionated.

7. (Previously Amended) The biochemical analyzing method in accordance with Claim 4, wherein the respective captured targets are electrophoresed in a plurality of capillaries adjacent to and in contact with the substrate, thereby being fractionated.

8. (Previously Amended) The biochemical analyzing method in accordance with Claim 7, wherein the plurality of capillaries are filled with a material capable of forming a membrane filter or a gel.

9. (Previously Amended) The biochemical analyzing method in accordance with Claim 1, wherein the probes are spotted on the substrate and fixed thereon.

10. (Previously Amended) The biochemical analyzing method in accordance with Claim 9, wherein the probes are one-dimensionally spotted on the substrate to form a plurality of spots and are fixed thereon.

11. (Previously Amended) The biochemical analyzing method in accordance with Claim 9, wherein the probes are two-dimensionally spotted on the substrate to form a plurality of spots and are fixed thereon.

12. (Previously Amended) The biochemical analyzing method in accordance with Claim 1, wherein the target consists of a gene.

13. (Previously Amended) The biochemical analyzing method in accordance with Claim 1 which further comprises a step of labeling the target with a fluorescent substance.

14. (Previously Amended) The biochemical analyzing method in accordance with Claim 13, wherein the target is labeled with the fluorescent substance prior to binding the target with the probes.

15. (Previously Amended) The biochemical analyzing method in accordance with Claim 13, wherein the target is labeled with the fluorescent substance after the respective targets were fractionated.

16. (Previously Amended) The biochemical analyzing method in accordance with Claim 1 which further comprises a step of labeling the target with a labeling substance which generates chemiluminescent emission when it contacts a chemiluminescent substrate.

17. (Previously Amended) The biochemical analyzing method in accordance with Claim 16, wherein the step of labeling occurs prior to said binding step.

18. (Previously Amended) The biochemical analyzing method in accordance with Claim 16, wherein the step of labeling occurs after the fractionating step.

19. (Previously Amended) The biochemical analyzing method in accordance with Claim 10, wherein the fractionated targets are two-dimensionally scanned and light released from the targets is detected, thereby performing quantitative analysis.

20. (Previously Amended) The biochemical analyzing method in accordance with Claim 10, wherein light released from the fractionated targets is detected using an area sensor and quantitative analysis is performed.

21. (Previously Amended) The biochemical analyzing method in accordance with Claim 11, wherein the fractionated targets are three-dimensionally scanned and light released from the targets is detected, thereby performing quantitative analysis.

22. (Previously Amended) The biochemical analyzing method in accordance with Claim 3, wherein targets electrophoresed to positions in accordance with the kinds of the targets are quantified and analyzed.

Claims 23-41 (previously cancelled)